

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 1-13 are now present in this application. Claims 1, 3, 4, 6 and 7, 10, 11 and 12 are independent.

Amendments have been made to the specification and drawings, claims 10-13 have been added, and claims 1, 3, 4, 5, 6 and 9 have been amended. Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document.

Drawings

Applicants acknowledge receipt of the Notice of Draftsperson's Patent Drawing Review PTO-948 indicating that the formal drawings are acceptable subject to correction of the informalities indicated.

Objection to the Drawings

The Examiner has objected to the drawings because Fig. 1 should be labeled "Fig.1A and Fig.1B"; reference characters "8" and "6" have both been used to designate "7", reference characters "11" and "P" have both be used to designate a pixel region, reference signs 3, 21 and 26, mentioned in the specification are not included in Fig. 1; reference signs 6, 8, 13, 14 and "T", not mentioned in the specification, are included in Fig. 1; and, the arrows are shown incorrectly in the drawing in Fig. 7. In order to overcome this objection, Applicants are concurrently submitting amendments to the specification, and Proposed Drawing Corrections for the Examiner's approval, which address each of the deficiencies pointed out by the Examiner. Accordingly, reconsideration and withdrawal of this objection are respectfully requested.

Specification Objection

The Examiner has objected to the specification as being generally narrative and indefinite, failing to conform to U.S. practice, and as being replete with grammatical and idiomatic errors.

In order to overcome this objection, Applicants have amended the specification in order to correct the deficiencies pointed out by the Examiner.

In addition, a Substitute Specification is being provided in order to place the application in better form. Also included is a marked-up copy of the original specification which shows the portions of the original specification which are being added and deleted. Applicants respectfully submit that the substitute specification includes no new matter and that the substitute specification includes the same changes as are indicated in the marked-up copy of the original specification showing additions and deletions. Reconsideration and withdrawal of this objection are respectfully requested.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

Claim 6 stands rejected under 35 U.S.C. § 112, 2nd Paragraph. This rejection is respectfully traversed.

In order to overcome this rejection, Applicants have amended claim 6 to correct the deficiency specifically pointed out by the Examiner. Applicants respectfully submit that claim 6, as amended, particularly points out and distinctly claims the subject matter which Applicants regard as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection Under 35 U.S.C. § 102

Hatanaka

Claim 1 stands rejected under 35 U.S.C. 102(e) over U.S. Patent No. 6,130,735 to Hatanaka. This rejection is respectfully traversed.

The Examiner asserts that Col.3, lines 19-25 discloses features of the Applicants' claimed invention. This portion of Hatanaka is directed to embodiment 3, and describes a reflective liquid crystal display device comprising a liquid crystal cell having liquid crystal charged between a pair of substrates, a polarizer disposed at the side of one substrate of the liquid crystal cell, a retardation film disposed between this polarizer and the liquid crystal cell, a scattering film layer disposed at the side of the one substrate, and a mirror reflector disposed at the side of other substrate of the liquid crystal cell (Col.3, lines 19-25).

Reading the above recited portion together with Col.8, lines 22-28 of Hatanaka, it is observed that structure and manufacturing method of a reflective liquid crystal display device in embodiment 3 of the invention are common to those in embodiment 1 and embodiment 2, and are described by referring to the sectional view of the reflective liquid crystal display device in FIG. 1 and FIG. 3 (see Hatanaka, Col.8, lines 22-28). Figures 1 and 3 do not show a polarizer formed on any surface of a substrate, nor do they show a

retardation film formed on an first (inner) surface of either substrate. Therefore Hatanaka does not disclose a second substrate, having a polarizer and a retardation film, the polarizer formed on a second surface of the second substrate, the retardation film formed on a first surface of the second substrate, as recited in independent claim 1 (as amended), and similarly stated in independent claim 6 (as amended). Accordingly, reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Okumura

Claim 3 stands rejected under 35 U.S.C. 102(e) over U.S. Patent No. 6,008,871 to Okumura. This rejection is respectfully traversed.

Referring to FIG. 11, Okumura discloses a conventional transflective liquid crystal display device, wherein 1101 designates an upper polarizer, 1102 is a retardation film, 1103 designates an upper glass substrate, 1104 designates transparent electrodes, 1105 designates a liquid crystal layer, 1106 is a lower glass substrate, and 1107 is a lower polarizer. Conspicuously absent, is a first retardation film formed in a light transmitting hole.

Therefore Okumura does not disclose the first retardation film formed in a light transmitting hole, as recited in independent claim 3, as amended.

Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Gessel

Claim 4 stands rejected under 35 U.S.C. 102(b) over U.S. Patent No. 5,659,378 to Gessel. This rejection is respectfully traversed.

Gessel does not disclose any combination of elements, as recited by the Examiner, which comprise a single complete device, nor does Gessel suggest such a combination of elements comprising a single complete device. For example, the Examiner states that Gessel discloses retardation films. However, this is not possible since the entire extent of Gessel's discussion of retardation films is limited to the following paragraph:

One prior art suggestion has been a layer arrangement that uses a complicated set of (2-4) thin film compensation (± 100 μm per film) layers between the analyzer and the top glass in the LCD structure to compensate for the polarization differences resulting when the image rays pass through the LCD structure at various angles to the viewing position. The film compensation layers serve to compensate for variations in the degree of polarization as a function of angle of view. The functional properties of the films used (also known as retardation films) are the birefringence (on the order of 0.004) and the retardation (on the order of 300-500 nm). A description of the physics that underlie the function of the compensation films is beyond the scope of this application; however, the result of the application of retardation films is an increase in the complexity of the LCD structure without fully alleviating contrast problems associated with off-axis viewing.

Gessel, Col. 9, lines 5-20 (emphasis added)

Because the discussion of retardation films in Gessel is not subject to any serious discussion, but limited to being mentioned only in passing (as set

forth above), Gessel does not disclose a lower substrate having a reflective electrode and a first lower retardation film sequentially arranged on a first surface thereof, as recited in independent claim 4 (as amended).

Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Rejections under 35 U.S.C. § 103

Hatanaka in view of Nishiguchi

Claims 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Hatanaka, in view of U.S. Patent No. 6,067,138 to Nishiguchi et al. (Nishiguchi). This rejection is respectfully traversed.

Hatanaka, argued above with respect to independent claim 1, does not disclose a retardation film formed on a first surface of the second substrate, therefore cannot, and does not disclose or suggest a second substrate over the retardation film, as recited in independent claim 6 (as amended).

Nishiguchi, asserted by the Examiner as teaching a retardation film made of a polymerized liquid crystal material, cannot fill this vacancy. A retardation film, formed on the first (inner) surface of the second substrate, in combination with other claimed features of the Applicants' invention, produces a device having high color purity and brightness. The resulting device is relatively thin

and lightweight, and can be manufactured with reduced assembly error, thereby reducing production costs. Applicants submit that the resulting device, is not only distinguishable over the prior art of record structurally, but is also distinguishable based on at least the above-described distinguishable advantages. Since neither Hatanaka, nor Nishiguchi discloses or suggests a second substrate over the retardation film, Hatanaka, in view of Nishiguchi, cannot render claim 6 obvious to one of ordinary skill in the art. Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Okamura in View of Nishiguchi

Claims 7 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura, in view of Nishiguchi. This rejection is respectfully traversed.

Okumura discloses a retardation film 1102, interposed between an upper polarizer 1101, and an upper substrate 1103. Retardation film 1102 does not contact a reflector, but contacts upper polarizer 1101 and upper substrate 1103 only (see Fig. 11). Therefore Okumura does not disclose or suggest a retardation layer contacting the reflector, as recited in independent claim 7. Nishiguchi, asserted by the Examiner as teaching a retardation film made of polymerized liquid crystal material, cannot fill this vacancy. Therefore, Okumura, in view of Nishiguchi, cannot render claim 7 obvious to one of ordinary skill in the art.

Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Dependent Claims

Claims 2, 5 and 9 stand rejected under 35 U.S.C. 102(e) over Hatanaka. This rejection is respectfully traversed.

With regard to dependent claims 2, 5 and 9, Applicants submit that claims 2, 5 and 9 depend, either directly or indirectly, from independent claims 1, 4 and 7, which are allowable for the reasons set forth above, and therefore claims 2, 5 and 9 are allowable based on their dependence from claims 1, 4 and 7. Reconsideration and allowance thereof are respectfully requested.

Added Claims

Claims 10-13 have been added for the Examiner's consideration.

Independent claim 10 recites a combination of elements in a reflective liquid crystal display device including a retardation film on an inner surface of the first substrate. Applicant respectfully submits that this combination of elements as set forth in independent claim 10 is not disclosed or made obvious by the prior art of record.

Independent claim 11 recites a combination of elements in a transfective liquid crystal display including a reflective electrode on an inner surface of the second substrate, the reflective electrode having at least one light transmitting hole. Applicant respectfully submits that this combination of elements as set forth in independent claim 11 is not disclosed or made obvious by the prior art of record.

Independent claim 12 recites a combination of elements in a transfective liquid crystal display including a second retardation film on an inner surface of the second substrate, the second retardation film having at least one light transmitting hole. Applicant respectfully submits that this combination of elements as set forth in independent claim 12 is not disclosed or made obvious by the prior art of record.

Applicants submit that claim 13 depends, either directly or indirectly, from independent claim 12, and is therefore allowable based on its dependence from claim 12, which is believed to be allowable.

Consideration and allowance of claims 10-13 are respectfully requested.

Allowable Subject Matter

With regard to claim 8, the Examiner has not stated any grounds of rejection. Accordingly, Applicants considers this claim to be allowable. Otherwise, claim 8 is allowable based on its dependence from claim 7, which

Applicants believe to be allowable for the reasons stated above with respect to independent claim 7. Allowance of claim 8 is respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Percy L. Square, Registration No. 39,538, at (703) 205-8034, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Application No.: 09/735,509
Art Unit 2871

Attorney Docket No. 3430-0158P
Amendment filed on July 11, 2002
Page 18

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application and the required fee of \$110.00 is attached herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By: 

Joseph A. Kolasch
Reg. No.: 22,463

JAK/PLS:asc

P.O. Box 747
Falls Church, Virginia 22040-0747
Telephone: (703) 205-8000

Attachment: Version with Markings to Show Changes Made
Substitute Specification
Marked-up Substitute Specification



VERSION WITH MARKINGS TO SHOW CHANGES MADE

RECEIVED
JUL 17 2002
TECHNOLOGY CENTER 2800

In the Specification:

A marked-up version of the Substitute Specification, showing the changes made, is attached hereto.

In the Claims:

The claims have been amended as follows:

1. (Amended) A reflective liquid crystal display device, comprising:
a first substrate having a reflective electrode on a [bottom] first surface thereof;
a second substrate having a polarizer and a retardation film, the polarizer formed on a [top] second surface of the second substrate, the retardation film formed on a [bottom] first surface of the second substrate; and
a liquid crystal layer interposed between the first surface of the first substrate and the first surface of the second substrate[s],
wherein the retardation film is made of one of a polymer and a liquid crystal.

3. (Amended) A transfective liquid crystal display, comprising:
a liquid crystal panel including:

- a) a first substrate having a first polarizer and a reflective electrode, the first polarizer formed on a [bottom] second surface thereof, the reflective electrode having at least one light transmitting hole and a first retardation film on a first surface thereof, the first retardation film formed in the light transmitting hole, the light transmitting hole transmitting light;

b) a second substrate having a second retardation film and a second polarizer sequentially arranged [theron] on a second surface thereof; and

c) a liquid crystal layer interposed between the first surface of the first substrate and the first surface of the second substrate[s],
and

a back light device for generating light.

4. (Amended) A liquid crystal display device, comprising:
a liquid crystal panel including:

a) an upper substrate having an upper polarizer and an upper retardation film sequentially arranged on a [top] second surface thereof;

b) a lower substrate having a reflective electrode and a first lower retardation film sequentially arranged on a [top] first surface thereof and a second lower retardation film and a lower polarizer sequentially arranged on a [bottom] second surface thereof, the reflective electrode and the first lower retardation film having a light transmitting hole, the light transmitting hole transmitting light; and

c) a liquid crystal layer interposed between [the] a first surface of the upper substrate and the first surface of the lower substrate[s];
and

a back light device providing light to the liquid crystal panel.

5. (Amended) The liquid crystal display device of claim 4, wherein the first lower retardation film is made of either of a UV curable polymer [and] or a UV curable liquid crystal..

6. (Amended) A reflective LCD device, comprising:
a first substrate;
a reflector over the [;a] first substrate [over the reflector];
a liquid crystal layer over the first substrate;
a retardation film over the liquid crystal layer, the retardation film [having one] being comprised of either polymer [and] or liquid crystal;
a second substrate over the [second substrate] retardation film, said retardation film being disposed on an inner surface of said second substrate;
and
a polarizer over the second substrate.

9. (Amended) The device of claim 7, wherein the retardation layer [has one] is comprised of UV curable polymer [and] or UV curable liquid crystal.

Claims 10-13 have been added.